AMENDMENTS TO THE CLAIMS

Please cancel Claim 2; amend Claims 1, 3, 4 and 6; and add new Claims 13 and 14 as follows.

LISTING OF CLAIMS

1. (Currently Amended) An OFDM communication system handling OFDM signals composed of a plurality of sub-carriers, the OFDM communication system comprising:

a first transmitter-receiver having a first horizontal polarization antenna and a first vertical polarization antenna, first OFDM signals including data signals and pilot signals being transmitted from the first horizontal polarization antenna, second OFDM signals including data signals and pilot signals being transmitted from the first vertical polarization antenna; and

a second transmitter-receiver having a second horizontal polarization antenna for receiving the first OFDM signals, a second vertical polarization antenna for receiving the second OFDM signals and a demodulator, the data signals in the first OFDM signals being phase-adjusted using the pilot signals in the first OFDM signals after the first OFDM signals are FFT-processed, the data signals in the second OFDM signals being phase-adjusted using the pilot signals in the second OFDM signals after the second OFDM signals are FFT-processed, both of the phase-adjusted data signals being demodulated by the demodulator, wherein:

the pilot signals included in the first OFDM signals and in the second OFDM signals are positioned at sub-carrier positions common to both of the OFDM signals; and [[.]]

the first transmitter-receiver further includes a signal level detector for comparing a signal level received by the first horizontal polarization antenna with a signal level received by the first vertical polarization antenna for each sub-carrier after signals received by both of the first antennas are FFT-processed and for determining which one of the signal levels is higher than the other, and means for selecting either the first horizontal polarization antenna or the first vertical polarization antenna based on the determination of the signal level detector, so that the data signals for each sub-carrier are transmitted from the selected antenna which is determined to have a higher signal level.

2. (Canceled)

3. (Currently Amended) The OFDM communication system as in claim 1, wherein:

the second transmitter-receiver further includes a sub-carrier synthesizer that synthesizes the respective phase-adjusted data signals for each sub-carrier before those signals are demodulated by the demodulator.

4. (Currently Amended) The OFDM communication system as in claim 1, wherein:

the first OFDM signals transmitted from ~~form~~ the first horizontal polarization antenna and the second OFDM signals transmitted from the first vertical polarization antenna are the same signals.

5. (Original) The OFDM communication system as in claim 4, wherein:

the second transmitter-receiver further includes: a signal level detector for detecting which signal level is higher in the signals received by the second horizontal polarization antenna or in the signals received by the second vertical polarization antenna; and a selector for selecting signals having a higher signal level for each sub-carrier based on detecting results of the signal level detector; and

the demodulator demodulates the selected signals.

6. (Currently Amended) A transmitter-receiver as a base terminal for use in an OFDM communication system handling OFDM signals that include data signals and pilot signals transmitted by a plurality of sub-carriers, the transmitter-receiver comprising:

a horizontal polarization antenna;

a vertical polarization antenna;

means for respectively FFT-processing OFDM signals received by both antennas and for outputting FFT-processed signals;

means for demodulating the FFT-processed signals;

a signal level detector for determining which one of both antennas has a higher performance for each sub-carrier frequency based on signal levels of the FFT-processed signals;

means for dividing the data signals to be transmitted for each sub-carrier frequency into a first data signal group to be transmitted from the horizontal polarization

antenna and a second data signal group to be transmitted from the vertical polarization antenna, so that respective data signals are transmitted from either one of both antennas which has a higher performance;

means for inserting common pilot signals into both data signal groups, thereby forming first OFDM signals to be transmitted from the horizontal polarization antenna and a second OFDM signals to be transmitted from the vertical polarization antenna; and

means for transmitting the first OFDM signals from the horizontal polarization antenna and the second OFDM signals from the vertical polarization antenna.

7. (Original) The transmitter-receiver as in claim 6, wherein:

the common pilot signal inserting means comprises a pilot signal generator, a first pilot signal inserter for inserting the pilot signals fed from the pilot signal generator into the first data signal group, and a second pilot signal inserter for inserting the pilot signals fed from the pilot signal generator into the second data signal group.

8. (Original) The transmitter-receiver as in claim 6, wherein:

the demodulating means comprises: a first phase adjuster for adjusting phase of the data signals in the signals FFT-processed from the OFDM signals received by the horizontal polarization antenna based on the pilot signals; a second phase adjuster for adjusting phase of the data signals in the signals FFT-processed from the OFDM signals received by the vertical polarization antenna based on the pilot signals; and a selector for selecting one of the phase-adjusted data signals which has a higher signal level based on information fed from the signal level detector.

9. (Original) A transmitter-receiver as a mobile terminal for use in an OFDM communication system handling OFDM signals that include data signals and pilot signals, the transmitter-receiver comprising:

a horizontal polarization antenna for receiving first OFDM signals;

a vertical polarization antenna for receiving second OFDM signals;

a first phase adjuster for adjusting phase of the data signals in the signals FFT-processed from the first OFDM signals using the pilot signals included in the first OFDM signals;

a second phase adjuster for adjusting phase of the data signals in the signals FFT-processed from the second OFDM signals using the pilot signals included in the second OFDM signals;

a synthesizer for synthesizing both data signals phase-adjusted by the first and second phase adjusters; and

a demodulator for demodulating the synthesized data signals.

10. (Original) A transmitter-receiver as a base terminal for use in an OFDM communication system handling OFDM signals that include data signals and pilot signals, the transmitter-receiver comprising:

a horizontal polarization antenna;

a vertical polarization antenna;

a pilot signal generator;

a pilot signal inserter for inserting the pilot signals generated by the pilot signal generator into the data signals, thereby forming the OFDM signals to be transmitted, wherein:

the same OFDM signals are transmitted from both of the horizontal polarization antenna and the vertical polarization antenna.

11. (Original) A transmitter-receiver as a mobile terminal for use in an OFDM communication system handling OFDM signals that include data signals and pilot signals, the transmitter-receiver comprising:

a horizontal polarization antenna for receiving first OFDM signals;

a vertical polarization antenna for receiving second OFDM signals;

means for FFT-processing the first OFDM signals to output first FFT-processed signals and for FFT-processing the second OFDM signals to output second FFT-processed signals;

a signal level detector for detecting which signal level is higher in the first FFT-processed signals or in the second FFT-processed signals;

a first phase adjuster for adjusting phase of the data signals in the first FFT-processed signals using the pilot signals included in the first OFDM signals;

a second phase adjuster for adjusting phase of the data signals in the second FFT-processed signals using the pilot signals included in the second OFDM signals;

a selector for selecting data signals which have a higher signal level from the phase-adjusted data signals by the first phase adjuster and the phase-adjusted data signals by the second phase adjuster for each sub-carrier frequency, based on information fed from the signal level detector; and

a demodulator for demodulating the data signals selected by the selector.

12. (Original) An OFDM communication system comprising:

a first transmitter-receiver having a first horizontal polarization antenna and a first vertical polarization antenna, first OFDM signals including data signals and pilot signals being transmitted from the first horizontal polarization antenna, second OFDM signals including data signals and pilot signals being transmitted from the first vertical polarization antenna; and

a second transmitter-receiver having a second horizontal polarization antenna for receiving the first OFDM signals, a second vertical polarization antenna for receiving the second OFDM signals and a demodulator, the data signals in the first OFDM signals being phase-adjusted using the pilot signals in the first OFDM signals after the first OFDM signals are FFT-processed, the data signals in the second OFDM signals being phase-adjusted using the pilot signals in the second OFDM signals after the second OFDM signals are FFT-processed, both of the phase-adjusted data signals being demodulated by the demodulator.

13. (New) The transmitter-receiver as in Claim 10, wherein:

the OFDM signals are composed of a plurality of sub-carriers.

14. (New) The OFDM communication system as in Claim 12, wherein:

the OFDM communication system handles OFDM signals composed of a plurality of sub-carriers; and

the first transmitter-receiver further includes a signal level detector for comparing a signal level received by the first horizontal polarization antenna with a

signal level received by the first vertical polarization antenna for each sub-carrier after signals received by both of the first antennas are FFT-processed and for determining which one of the signal levels is higher than the other, and means for selecting either the first horizontal polarization antenna or the first vertical polarization antenna based on the determination of the signal level detector, so that the data signals for each sub-carrier are transmitted from the selected antenna which is determined to have a higher signal level.